



**GOVERNMENT OF INDIA  
TARIFF COMMISSION**

**REPORT  
ON**

**The Revision of the Fair Selling Prices  
of Caustic Soda, Chlorine, Hydrochloric  
Acid and Bleaching Powder**

**BOMBAY 1961**

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GOVERNMENT OF INDIA  
MINISTRY OF COMMERCE AND INDUSTRY  
*New Delhi, the 31st January, 1962.*

**RESOLUTION**

**No. CH(I)-15(41)/61.**—The Tariff Commission has submitted its report on the fair selling prices of caustic soda, chlorine, hydrochloric acid and bleaching powder and recommended as follows:—

- (i) Selling prices for caustic soda, chlorine, hydrochloric acid and bleaching powder should be fixed on ex-works basis as at present.
- (ii) At the present stage of development of the industry it is not desirable to fix a separate price for liquid caustic soda of the rayon grade.
- (iii) The ex-works selling price of fused solid caustic soda conforming to I. S. I. specification (technical grade) should be fixed at Rs. 36·00 per 50 kg.
- (iv) The ex-works selling price of caustic soda lye on the basis of 100 per cent NaOH content should be fixed at Rs. 31·00 per 50 kg. The price includes filling charges but not the rental of containers.
- (v) The ex-works selling price of caustic soda flakes conforming to I. S. I. specification (technical grade) should be fixed at Rs. 41·00 per 50 kg.
- (vi) There should be no price control on the sale of chlorine in gaseous form.
- (vii) The ex-works selling price inclusive of filling charges of liquid chlorine in returnable containers should be maintained at the existing level of Rs. 21·85 per 50 kg. In respect of liquid chlorine to be supplied for the manufacture of chlorine products within the factory or in adjacent units, selling expenses of Re. 1 per 50 kg. will not be admissible.
- (viii) The ex-works selling price of hydrochloric acid (commercial grade) should be fixed at Rs. 9·70 per 50 kg. In respect of hydrochloric acid supplied for the manufacture of other products within the factory or adjacent units, selling expenses of Re. 1 per 50 kg. will not be admissible.
- (ix) The ex-works selling prices of bleaching powder (stable for packings of 55 kg., 50 kg., 40 kg., 25 kg., and 12·5 kg.) should be maintained at the current levels of Rs. 32·55, Rs. 30·15, Rs. 25·35, Rs. 16·10 and Rs. 9·25 respectively. There is no need to fix selling prices for smaller sizes of packings.

(ii)

(x) The ex-works selling prices of caustic soda in its three forms, liquid chlorine, hydrochloric acid (commercial) and stable bleaching powder recommended above should be notified as ceiling prices for purchases ex-factory either directly or through agents or distributors of the manufacturers. These prices are exclusive of all levies, Central or State, and should be in force till the end of December, 1964.

2. Government have accepted the recommendations of the Tariff Commission except for the ex-works selling price of Bleaching Powder. The Tariff Commission has worked out a fair selling price for bleaching powder at Rs. 26·30 per 50 kgs. packing but has recommended the maintenance of the price at the current level *i.e.*, Rs. 30·15 per 50 kgs. as otherwise the existing unit may not have sufficient incentive to expand its production, and, in that event, it may involve import of the material. There is a considerable force in the recommendations of the Tariff Commission. Government, however, feel that the extent of incentive suggested is on the high side and it would suffice if the selling price is fixed on the basis of Rs. 28·50 per 50 kgs. packing and have decided accordingly.

3. The following will be the ex-works selling prices for caustic soda in its three forms, liquid chlorine, hydrochloric acid (commercial) and stable bleaching powder. These prices are for purchases ex-factory either directly or through agents or distributors of the manufacturers and are exclusive of all levies, Central or State and will be in force till the end of December, 1964.

(i) Fused Solid Caustic Soda (technical grade conforming to I.S.I. specification) . . . . .	Rs. 36·00 per 50 kgs. ex-works.
(ii) Caustic soda lye (basis 100% NaOH content) . . . . .	Rs. 31·00 per 50 kgs. ex-works.  (The price includes filling charges but not rental on containers.)
(iii) Caustic soda flakes (technical grade conforming to I.S.I. specification) . . . . .	Rs. 41·00 per 50 kgs. ex-works.
(iv) Ceiling prices for caustic soda solid and flakes will be pro-rata higher for every 1% purity above 96% NaOH to provide for the sale of rayon grade caustic soda.	
(v) Liquid chlorine . . . . .	Rs. 21·85 per 50 kgs. ex-works.  (The ceiling price includes filling charges in returnable containers.)
(vi) Hydrochloric acid (commercial grade) . . . . .	Rs. 9·70 per 50 kgs. ex-works.
(vii) In respect of liquid chlorine and hydrochloric acid supplied for the manufacture of other products within the factory or adjacent units, selling expenses will not be admissible.	

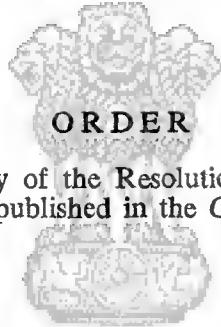
(iii)

(viii) *Stable bleaching powder :*

Size of packing	Price
	Rs.
55 kgs. . . . . . . .	31·25
50 kgs. . . . . . . .	28·50
40 kgs. . . . . . . .	23·50
25 kgs. . . . . . . .	15·75
12.5 kgs. . . . . . . .	9·25

(The above prices will be on ex-works basis for various sizes of packings).

4. The above prices will come into force from 1st of February, 1962.



ORDER

ORDERED that a copy of the Resolution be communicated to all concerned and that it be published in the *Gazette of India*.



G. C. L. JONEJA,

*Joint Secretary to the Govt. of India.*

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### APPENDIX

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## REPORT ON THE REVISION OF THE FAIR SELLING PRICES OF CAUSTIC SODA, CHLORINE, HYDROCHLORIC ACID AND BLEACHING POWDER

1.1. In a Report submitted to Government in October 1958 we recommended that the following fair ex-works selling prices (ceiling prices) for caustic soda, chlorine, hydrochloric acid and bleaching powder should be fixed for a period of two years till 31st December 1960:

**x. Origin of the case.**

Product	Fair selling price (ceil- ing price)
	(Rs. per cwt.)
(i) Fused solid caustic soda . . . . .	35.00
(ii) Caustic lye (on the basis of 100% NaOH content), including filling charges, but not the cost of or rental for containers . . . . .	25.80
(iii) Caustic soda flakes . . . . .	40.00
(iv) Dry gas chlorine, naked, supplied for the manufacture of chlorinated products within the factory or in adjacent units . . . . .	13.00
(v) Liquid chlorine, in returnable containers, inclusive of filling charges . . . . .	22.20
(vi) Hydrochloric acid (commercial grade), naked, inclusive of filling charges . . . . .	10.80
(vii) Bleaching powder . . . . .	24.20

By the Ministry of Commerce and Industry Resolution No. CH(1)-31 (36)/58, dated 27th October 1959, Government announced their decisions on the above recommendations except with regard to item (vii)—bleaching powder. In order to provide an incentive for the increased production of caustic soda in liquid form the fair selling price of caustic soda lye was fixed by Government at a higher level at Rs. 29.00 per cwt. after discussion with the manufacturers and in consultation with us. In the case of other products our original recommendations were accepted by Government. It was also mentioned in the Resolution that the prices fixed for solid caustic soda and flakes will be for material of purity conforming to ISI specification. The prices were made effective from the date of the Resolution, namely, 27th October 1959 and were stated to be ceilings for purchases ex-factory either directly or through agents or distributors of the manufacturers.

1.2. Government's decision regarding the selling price of bleaching powder was announced later, *vide* the Ministry of Commerce and Industry Resolution No. CH-31(44)/59, dated 31st May 1960. After examining certain representations from the producer (Mettur Chemical and

Industrial Corporation Ltd.) and after consulting us, Government fixed, with effect from 1st June 1960, the following fair ex-works selling prices for different bulk packings of stable bleaching powder entering the wholesale trade:

Size of packings	Fair ex-works selling price
	Rs.
100 Kgs. . . . . . . . . .	51.80
55 Kgs. . . . . . . . . .	29.65
25 Kgs. . . . . . . . . .	14.75
12.5 Kgs . . . . . . . . . .	8.60
3.0 Kgs. . . . . . . . . .	2.85
1.5 Kgs. . . . . . . . . .	1.60
0.5 Kgs. . . . . . . . . .	0.85
0.25 Kgs. . . . . . . . . .	0.75

It was also announced, as in the case of caustic soda and chlorine products, that the above prices were ceilings for purchases ex-factory either directly or through agents or distributors of the manufacturers.

1.3. In regard to unstable variety of bleaching powder, we did not work out the representative cost for the industry as a whole, but made the following observations:—

- (i) that when the expansion of the stable bleaching powder plant of Mettur Chemicals is completed, the production and off-take of unstable bleaching powder would be insignificant,
- (ii) that the unstable variety would ordinarily fetch a lower price than the stable variety, the price differential being Rs. 5.00 per cwt. under the then prevailing market conditions, and
- (iii) that it would be sufficient if the industry was urged to continue such a fair differential without Government fixing a price for the unstable variety of bleaching powder.

Government agreed with the above observations and urged the industry to maintain a fair price differential in respect of unstable bleaching powder.

1.4. The ceiling prices of caustic soda, chlorine and bleaching powder were later reviewed by Government and the following revised

ceiling prices of caustic soda flakes, solid and liquid were announced in the Ministry of Commerce and Industry Resolution No. CH(1)-15(29)/60, dated 31st January 1961 (Appendix I):—

*Revised prices (per cwt.)*

Caustic soda, flakes . . . . .	Rs. 41·50 (on ISI basis)
Caustic soda, solid . . . . .	Rs. 36·50 (on ISI basis)
Caustic soda, liquid . . . . .	Rs. 31·50 (on a 100% basis)

No change was made in the prices of dry gas chlorine, liquid chlorine and hydrochloric acid. It was announced that these prices would remain in force till 31st January 1962. By another Resolution No. CH(1)-31(44)/59 of the same date (Appendix II), the ceiling prices of bleaching powder were revised as follows:—

Size of packings	Revised ex-works: ceiling prices
Kgs.	Rs.
100 . . . . .	57.10
55 . . . . .	32.55
25 . . . . .	16.10
12.5 . . . . .	9.25
3.0 . . . . .	3.00
1.5 . . . . .	1.70
0.5 . . . . .	0.85
0.25 . . . . .	0.75

The revised prices of bleaching powder were to remain in force initially for the period ending 31st July 1961 but were later extended upto 31st December 1961.

1.5. Government, by a letter dated 1st June 1961, have asked us to undertake a review of the ceiling prices for caustic soda and chlorine in all forms while examining the question of continuance of protection to the caustic soda industry beyond 31st December 1961. In the Ministry of Commerce and Industry Resolution, dated 31st May 1960 mentioned in paragraph 1.2. Government announced that the ceiling prices fixed for bleaching powder would be subject to review by the Tariff Commission, as and when due. We have accordingly undertaken the present inquiry into the revision of the fair selling prices (ceiling prices) of caustic soda, chlorine, hydrochloric acid and bleaching powder.

2.1. Our Cost Accounts Officers examined the costs of production of caustic soda (in its different forms), chlorine (in the form of dry gas or as liquor supplied in returnable containers),

**2. Method of determination of fair ex-works prices.** hydrochloric acid and bleaching powder at seven units. But data relating to one of them, namely, Saurashtra Chemicals, Porbandar, could not be

considered for purposes of determining the fair ex-works prices of the various products for the reasons mentioned in paragraph 14.1 of our recent Report on the continuance of protection to the caustic soda industry. The names of the other six units with their capacities are given below:—

Name of the unit	Present daily capacity for caustic soda (In tonnes)	Abbreviation used in this report
1. Alkali & Chemical Corporation of India Ltd., Calcutta . . . . .	21.40	ACCI
2. Calico Mills (Chemical Division), Bombay . . . . .	10.16	Calico.
3. Delhi Cloth Mills Chemical Works, Delhi . . . . .	35.56	DCM
4. Dhrangadhra Chemical Works Ltd., Sahupuram . . . . .	80.00	Dhrangadhra
5. Mettur Chemical and Industrial Corporation Ltd., Mettur . . . . .	20.32	Mettur
6. Tatas Chemicals Ltd., Mithapur . . . . .	(Chemical) 20.32  (Electro- lytic) 10.16	Tatas

On the basis of the data collected by our Cost Accounts Officers and after discussion of costs relating to each unit separately with the representatives of the units concerned, we have worked out the estimates of future costs of production and fair ex-works prices for the several products. The reports of our Cost Accounts Officers have been forwarded to Government as confidential papers.

2.2. Saurashtra Chemicals and Tatas manufacture chemical caustic soda. The rest of the units in the industry as well as Tatas manufacture

caustic soda by the electrolytic process. Of those that produce electrolytic caustic soda, Dhrangadhra and Calico (Bombay unit) are using mercury cells and make rayon grade material. Others employ diaphragm cells. Since in the electrolytic process of manufacture of caustic soda, chlorine gas is generated as a joint product, the costs of production up to and including the cell house stage and the cost of drying chlorine are divided between the main joint products in proportion to the generated weights. All expenditure subsequent to this stage is charged directly to the respective products. As regards unutilised chlorine, we have continued the past practice and treated the loss due to destruction of chlorine as a special element in the cost of production of caustic soda. The cost of unutilised chlorine is inclusive of cost of destroying chlorine.

2.3. While framing the estimates of future costs, we have taken into account efficiency and consumption factors, installation of additional capacity during the next three years, probable consumption of raw materials and other stores, power and fuel, etc. after studying the experience of each unit in the past and the possibilities of improving the efficiency factor. The estimates of wages and staff charges have been made with due allowances for increase in capacity. Necessary provision to cover the incidence of normal annual increments has also been made. Depreciation has been computed at normal income-tax rates on the diminishing balance method.

3. Brief particulars and details of costs for the past periods as well as future estimates in respect of the six units are given below:—

### 3.1. Alkali & Chemical Corporation of India Ltd.:

This is one of the units selected for cost examination at the time of the last inquiry. This time costs have been examined for the year 1959-60 and on that basis estimates of future costs have been worked out. The company produces caustic soda (lye), liquid chlorine and hydrochloric acid. The works costs of production during the actual period were not very different from the estimates made in 1958. In estimating future costs, the price of salt has been taken at Rs. 73·83 per tonne. The cost of salt is much higher than for other units due to the incidence of heavy transport charges from Saurashtra and Kutch to Calcutta. Consumption of electricity for future has been taken at 2816 kwh. per tonne of caustic soda lye and the rate at nP. 5·267 per kwh. The rate for electricity is a little higher than in our 1958 estimates and we have assumed that its consumption would remain more or less constant. There is practically no loss due to destruction of unutilised chlorine and the loss which is incidental to further processing of chlorine gas is included in the respective process costs. Figures relating to actual works costs and estimates of future costs per tonne of the several products are given on the next page.

THE ALKALI & CHEMICAL CORPORATION OF INDIA LTD.

*Statement showing the comparison of the costs of production for 1959-60 with the Commission's estimate in 1958 and estimates for future*

### 3.2. Calico Mills (Chemical Division), Bombay :

This unit is engaged in the production of caustic soda (lye), liquid chlorine, hydrochloric acid and bleach liquor. The examination of costs has been made for the year ended March 1961 and the estimates of future costs have been worked out on the basis of data relating to this period. The estimates of production for future take note of the fact that there will be an increase in capacity for production of caustic soda from the third quarter of 1963 by 20:32 tonnes a day. This company obtains its requirement of salt mainly from Saurashtra and Kutch area and the rate for salt assumed in the estimates is Rs. 57.55 per tonne. It purchases its entire requirement of electricity. The rate for cell house worked out to an average of nP. 4.185 per kwh. The consumption of power per tonne of lye has been taken at 3854 kwh. This company does not produce caustic soda solid or flakes nor has it plans for manufacture of caustic soda in these forms in the near future. It was able to utilise practically all its output of chlorine and hence the cost of caustic lye is not loaded with an additional element for loss due to wastage of chlorine. The production of hydrochloric acid for future shows a sharp decline for the reason that its sale will be seriously affected due to one of its major consumers in Bombay installing a plant of its own for the manufacture of this product. Figures relating to actual works costs and estimates of future costs per tonne of several products are given on the next page.



CALICO MILLS, CHEMICAL DIVISION, BOMBAY

*Statement showing the comparison of the costs of production for 1960-61 with the Commission's estimates for future.  
(Rs. per Tonne)*

Product	Caustic lye (100% NaOH)		Gas chlorine		Liquid chlorine		Hydrochloric acid (Commercial)	
	Period	Actuals for 1960-51	Estimates for future	Actuals for 1960-61	Estimates for future	Actuals for 1960-61	Estimates for future	Actuals for 1960-61
Production in Tonnes . . . .		3,240	6,650	2,876	5,900	1,691	4,870	1,592
								620
(i) Raw materials . . . .		127.35	138.07	66.58	72.19	386.01	359.28	118.96
(ii) Power & fuel . . . .		202.24	196.09	105.73	102.54	15.87	16.76	0.45
(iii) Other conversion charges . . . .		207.49	162.50	108.49	84.97	56.01	50.43	18.76
(iv) Depreciation . . . .		197.67	187.40	103.35	97.98	51.66	40.66	14.87
(v) TOTAL . . . .		734.75	684.06	384.15	357.68	509.55	467.13	153.04
(vi) Less Credits for materials recovered, etc.		331.51	304.59	..	..	..	..	..
(vii) NET TOTAL . . . .		403.24	379.47	384.15	357.68	509.55	467.13	153.04
(viii) Packing . . . .		..	..	..	..	17.67	20.57	..
(ix) TOTAL Works Cost . . . .		403.24	379.47	384.15	357.68	527.22	487.70	153.87

### 3.3. D. C. M. Chemical Works :

This unit was selected for cost examination at the time of the last inquiry also. The examination of costs has been made this time for the year ended 30th June 1960 and also for the nine months ended 31st March 1961. Our estimates of future fair ex-works prices are made on the basis of data relating to the latter period. The company produces caustic soda in three forms, liquid chlorine and hydrochloric acid. It does not sell any gas chlorine as such. In our estimate of production for future, we have taken note of the fact that the company will increase its daily capacity of caustic soda to about 37 tonnes, 43 tonnes and 48 tonnes respectively during the years 1961-62, 1962-63 and 1963-64. The utilisation of chlorine was about 99% during 1959-60 and 97% during 1960-61 (9 months). The cost of salt has been taken at Rs. 62·65 per tonne and the rate for electricity at nP. 7·28 per kwh. About 70% of the company's requirement of electricity is generated in its own thermal plant and the balance is purchased from the Delhi State Electricity System. The consumption of electricity has been estimated at 3651 units per tonne of solid caustic soda. The company estimated that the wastage of chlorine would be around 12% in future, but we saw no valid reason for admitting such a high figure. After taking into account the representation made by the company in this behalf and other relevant factors, we have decided to admit wastage of chlorine to the extent of 5% only for future. We give on the following pages figures relating to actual works costs and estimates of costs for future per tonne of the several products.



D. C. M. CHEMICAL WORKS

*Statement showing the comparison of the cost of production of caustic soda for 1959-60 and 1960-61 (9 months) with the Commission's estimates in 1958 and estimates for future*

(Rs. per Tonne)

D. C. M. CHEMICAL WORKS—(Contd.)

*Statement showing the comparison of the costs of production of chlorine and hydrochloric acid for 1959-60 and 1960-61 (9 months) with the Commission's estimates in 1958 and estimates for future*

### 3.4. Dhrangadhra Chemical Works :

The caustic soda factory located at Sahupuram is a unit of Dhrangadhra Chemical Works, Ltd., Dhrangadhra. It went into regular production in October 1959 and now produces fused caustic soda and caustic soda flakes of rayon grade. A small quantity of hydrochloric acid is also produced for sale. The company has taken up an expansion scheme for increasing stage by stage its daily capacity for manufacture of caustic soda from 80 tonnes to 140 tonnes. For future we have assumed an average production of 38,000 tonnes of caustic soda of which 37,000 tonnes will be in the form of fused caustic and the balance 1,000 tonnes in the form of flakes. Hitherto the company has been obtaining its entire requirement of salt from outside agencies. It is developing its own salt works in the areas adjacent to its works where it will be producing salt under the conventional solar process. It is also equipped to produce chemically pure salt from sea brine by passing hydrochloric acid gas through it. As regards the total requirement of salt, we have estimated that the company's own production during the next three years by both the processes would be about 55 per cent and the balance would be purchased from outside—the weighted average cost of salt being Rs. 22.96 per tonne. The wastage of chlorine is at its maximum in this case as the unit has not been able to utilise as much as 96 per cent of its output of chlorine gas. As for future, it has been estimated that about 32 per cent of the chlorine output will be consumed by the company in its own works for precipitation of salt from sea brine and for purification of brine. It has also been assumed that about two per cent would be sold by way of hydrochloric acid and bleach liquor. Electricity is purchased from the Madras State Electricity System and the future rate has been estimated at nP. 2.5 per kwh., the consumption per tonne of fused caustic soda having been taken at 3540 kwh. Figures relating to actual works costs and estimates of future costs per tonne of the several products are given on the following pages.

**DHRANGADHRA CHEMICAL WORKS LTD. SAHUPURAM.**

*Statement showing the comparison of costs of production for 1960-61 with the Commission's estimates for future*

(Rs. per Tonne)

Period	Product	Caustic lye (100% NaOH)		Fused caustic soda		Caustic soda flakes		Gas chlorine		Hydrochloric acid (Gas)	
		Actuals (1960- 61)	Esti- mates for future	Actuals (1960- 61)	Esti- mates for future	Actuals (1960- 61)	Esti- mates for future	Actuals (1960- 61)	Esti- mates for future	Actuals (1960- 61)	Esti- mates for future
Production in Tonnes	.	22,398	38,000	21,871	38,000	472	1,000	19,844	33,668	18,442	31,200
(i) Raw materials	.	88·14	61·95	88·14	61·95	88·14	61·95	46·13	37·67	204·99	190·28
(ii) Power & fuel	.	90·99	90·34	121·14	120·58	123·59	123·05	47·62	54·93	0·06	0·06
(iii) Other conversion charges	.	71·32	72·49	92·55	97·02	94·27	99·03	37·31	44·03	7·96	6·13
(iv) Depreciation	.	141·28	88·15	161·37	102·60	162·99	105·09	73·93	53·60	10·20	7·94
(v) Total	.	391·73	312·93	463·20	382·15	468·99	389·12	204·99	190·28	223·21	204·41
(vi) Less credits for materials recovered, etc.	.	186·74	122·65	186·74	122·65	186·74	122·65	..	..	..	..
(vii) NET TOTAL	.	204·99	190·28	276·46	259·50	282·25	266·47	204·99	190·28	223·21	204·41
(viii) Packing	.	..	..	57·58	57·58	162·88	162·88	..	..	..	..
(ix) Add cost of un-utilised chlorine	.	197·79	130·11	197·79	130·11	197·79	130·11	..	..	..	..
(x) Total Works Cost	.	402·78	320·39	531·83	447·19	642·92	559·46	204·99	190·28	223·21	204·41
										74·40*	68·14*

[\*For hydrochloric acid—commercial grade.]

**THE METTUR CHEMICAL AND INDUSTRIAL CORPORATION LTD.**

*Statement showing the comparison of the costs of production for 1960-61 with the Commission's estimates in 1958 and estimates for future.*

(Rs. per Tonne)

Product	Caustic lye (100% NaOH)			Fused caustic soda			Caustic soda flakes		
	Commission's estimates in 1958	Actuals (1960-61)	Estimates for future	Commission's estimates in 1958	Actuals (1960-61)	Estimates for future	Commission's estimates in 1958	Actuals (1960-61)	Estimates for future
Production in Tonnes	6,376	5,588	12,125	4,674	2,439	7,600	1,016	358	1,500
(i) Raw materials	88.87	99.49	109.62	84.53	95.51	105.22	88.76	97.42	107.32
(ii) Power & fuel	197.74	176.47	169.86	231.56	216.50	209.68	243.13	222.23	215.27
(iii) Other conversion charges	160.26	182.88	115.16	204.70	258.94	162.98	214.95	266.63	167.82
(iv) Depreciation	42.08	64.96	80.87	46.26	78.97	80.85	48.57	81.05	82.56
(v) TOTAL	488.95	523.80	475.51	567.05	649.92	558.73	595.41	667.33	572.97
(vi) Less credits for materials recovered, etc.	155.97	165.21	142.04	149.02	158.60	136.35	156.47	161.77	139.08
(vii) NET TOTAL	332.98	358.59	333.47	418.03	491.32	422.38	438.94	505.56	433.89
(viii) Packing	..	..	..	44.29	51.29	52.62	138.77	154.07	164.75
(ix) Add cost of un-utilised chlorine.	31.27	25.78	42.63	31.30	24.75	40.92	32.86	25.25	41.74
(x) TOTAL Works Cost	364.25	384.37	376.10	493.62	567.36	515.92	610.57	684.88	640.38

(Rs. per Tonne)

Product	Gas chlorine			Liquid chlorine			Hydrochloric acid (Commercial)		
Period	Commission's estimates in 1958	Actuals (1960-61)	Estimates for future	Commission's estimates in 1958	Actuals (1960-61)	Estimates for future	Commission's estimates (1960-61) for future	Actuals (1960-61)	Estimate for future
Production in Tonnes	6,084	5,448	11,320	1,829	3,661	6,600	1,321	1,425	8,400*
(i) Raw materials	43.87	49.41	54.21	160.93	174.91	147.15	69.29	73.46	62.70
(ii) Power & fuel	51.12	45.06	42.41	5.86	5.16	5.17	1.85	1.07	1.05
(iii) Other conversion charges	49.50	56.43	31.52	32.50	36.79	25.00	43.51	29.86	8.74
(iv) Depreciation	17.48	22.68	19.78	15.03	14.28	6.90	4.56	11.14	7.01
(v) Total	161.97	173.58	147.92	214.32	231.14	184.22	119.21	115.53	79.50
(vi) Less credits for materials recovered, etc.	1.04	2.44	3.66	0.74	..	..	0.40	..	..
(vii) NET TOTAL	160.93	171.14	144.26	213.58	231.14	184.22	118.81	115.53	79.50
(viii) Packing	..	..	..	61.75	57.12	34.97	..	..	..
(ix) Add cost of un-utilised chlorine.	..	..	..	..	..	..	..	..	..
(x) TOTAL WORKS COST	160.93	171.14	144.26	275.33	288.26	219.19	118.81	115.53	79.50

[\*Includes 5,000 tonnes destroyed.]

### *3.5. Mettur Chemical & Industrial Corporation Ltd.:*

This is one of the units selected at the time of our last investigation. The company produces caustic soda in all the three forms, liquid chlorine, hydrochloric acid and bleaching powder, besides other products. It does not market gas chlorine as such. The company has plans for increasing the capacity for caustic soda from 20·32 tonnes to 40·64 tonnes a day and this expansion is expected to be completed by the second half of 1961. The resulting higher output has been taken note of while estimating production for future. In view of the substantial increase in capacity for the production of electrolytic caustic soda, the company does not expect its utilisation of chlorine to improve. It urged that its wastage of chlorine in future should be assumed at 36 per cent as against 16 per cent during the actual period. After considering the several issues connected with the utilisation of chlorine, we concluded that the wastage of chlorine would not exceed on an average 25 per cent in future. The company purchases its entire requirement of power from the Madras State Electricity System and the rate for power is a derived figure on the basis of the present tariff. The consumption of power per tonne of fused solid caustic soda has been taken at 3460 kwh. In estimating the future costs, the rate for salt has been taken at Rs. 40 per tonne and that of power at nP. 2·24 per kwh including the estimated expenses of converting AC current into DC current. The company utilises liquid chlorine in the manufacture of stable bleaching powder and liquid chlorine is charged to stable bleaching powder at the works cost of production excluding packing charges. We give below figures of actual works costs and estimates of costs for future per tonne of the several products.

### *3.6. Tata Chemicals Ltd.:*

This company was also selected for cost examination at the time of our 1958 inquiry. The examination of costs has been made this time for the year ended June 1960 and for the nine months ended March 1961. The estimates of future fair ex-works costs have been made on the basis of data relating to the latter period. The company has discontinued the manufacture of unstable bleaching powder since 1960. It does not market gas chlorine as such. The quantity of liquid chlorine and hydrochloric acid marketed by the company is only 10 to 15 per cent of the total production and the balance is consumed internally. The utilisation of chlorine is satisfactory, being of the order of 98 per cent. In estimating the production for future, additions to capacity both for electrolytic and chemical caustic soda have been taken note of. Though the cost figures have been worked out separately for chemical and electrolytic caustic soda in the forms of lye and fused solid, it may be pointed out that when they emerge from the works, they are products derived from the mixture of thin lye manufactured by both the processes. We have given separate sets of figures only for the limited purpose of comparison. Since the last inquiry, the company has been able to market a small quantity of caustic soda in the form of lye. For future, the outlook seems to be brighter and we have assumed a larger share of the output to be marketed in this form. The

main raw materials for the manufacture of chemical caustic soda are soda ash and limestone. Soda ash is produced by the company itself and is charged at the cost of production up to and including the stage of de-carbonation. The cost of soda ash shown under the head "raw materials" is exclusive of depreciation and profit. These elements are, however, included in the respective heads and the total cost of chemical caustic soda is inclusive of this. As regards electrolytic caustic soda, though the company uses mainly its own salt now, it will be obliged to purchase salt to some extent in future. The cost of salt for future has been taken at Rs. 22·03 per tonne inclusive of cess. The company generates electricity for its use and we have assumed a consumption rate of 3700 kwh. per tonne of solid caustic soda. The cost of electricity excluding depreciation and profit works out to nP. 9·8 per kwh. We give on the following pages figures relating to the actual works costs and the estimates of costs for future per tonne of several products.



**THE TATA CHEMICALS LTD.**

*Statement showing the comparison of the costs of production of caustic soda for 1959-60 and 1960-61  
(9 months) with the Commission's estimates in 1958 and estimates for future*

(Rs. per Tonne)

Period	Product	Caustic lye (100% NaOH)—			Caustic lye (100% NaOH)—			Caustic soda solid—		
		Electrolytic			Chemical			Electrolytic		
		Actuals 1959/60	Actuals 1960/61 (9 months)	Estimates for future	Actuals 1959/60	Actuals 1960/61 (9 months)	Estimates for future	Commission's estimates in 1958	Actuals 1959/60	Actuals 1960/61 (9 months)
	Production (Tonnes)	2,794	2,436	4,704	4,060	2,572	7,296	3,607	2,691	2,288
1. Raw materials	.	87.48	72.75	69.96	444.89	445.99	403.94	56.51	81.51	69.44
2. Power & fuel	.	456.57	445.48	439.05	121.18	125.18	113.97	422.77	464.50	463.71
3. Other conversion charges	.	274.67	224.06	168.21	137.11	145.03	89.47	215.78	271.66	230.93
4. Depreciation	.	73.98	81.27	94.18	111.55	108.54	97.86	45.86	73.49	82.03
5. Total	.	892.70	823.56	771.41	814.73	824.74	705.24	740.92	891.16	846.11
6. Less credits for materials recovered, etc.	340.58	291.51	276.90	25.57	26.09	23.03	23.03	286.22	317.35	278.25
7. Net Total	.	552.12	532.05	494.51	789.16	798.65	682.21	454.70	573.81	567.86
8. Packing	.	3.53	3.16	3.12	3.53	3.16	3.12	42.57	44.05	51.92
9. Additional cost of unutilised chlorine.	.	27.17	14.09	9.53	..	..	..	13.00	25.31	13.45
10. Total Works Cost	.	582.82	549.30	507.16	792.69	801.81	685.33	510.27	643.17	633.23

THE TATA CHEMICALS LTD.—*Contd.*

(Rs. per Tonne)

Period	Product	Caustic soda solid—Electrolytic		Caustic soda solid—Chemical		Caustic soda—Flakes	
		Estimates for future	Commission's estimates in 1958	Actuals 1959/60	Actuals 1960/61 (9 months)	Estimates for future	Commission's estimates in 1958
	Production (Tonnes)	4,210	5,639	3,911	2,415	6,540	1,016
1. Raw materials	.	.	67.16	393.44	414.55	1425.70	387.78
2. Power & fuel	.	.	459.44	120.04	151.99	157.98	147.35
3. Other conversion charges	.	.	177.13	115.71	142.87	154.43	100.33
4. Depreciation	.	.	94.69	30.16	108.48	108.07	98.23
5. Total	.	.	798.42	659.35	817.89	846.18	733.69
6. Less credits for materials recovered, etc.	.	265.83	18.90	23.83	24.90	22.11	123.22
7. Net Total	.	.	532.59	640.45	794.06	821.28	711.58
8. Packing	.	.	51.55	42.57	44.05	51.92	51.55
9. Additional cost of un-utilised chlorine.	.	.	9.15	..	..	..	5.10
10. Total Works Cost	.	593.29	683.02	838.11	873.20	763.13	728.14

**THE TATA CHEMICALS LTD.--Contd.**

*Statement showing the comparision of the costs of production for 1959-60 and 1960-61 (9 months) with the Commission's estimates in 1958 and estimates in future*  
 (Rs. per Tonne)

Product	Gas Chlorine			Liquid Chlorine			Hydrochloric Acid (Commercial)		
	Commission's estimates in 1958	Actuals 1959/60	Estimates for future (9 months)	Commission's estimates in 1958	Actuals 1959/60	Estimates for future (9 months)	Commission's estimates in 1958	Actuals 1959/60	Estimates for future (9 months)
Production (Tonnes)	3577	2685	2245	4525	2101	1672	1484	2580	2515
									2052
1. Raw materials	26.44	38.74	34.97	33.75	257.73	295.41	277.74	263.90	87.52
2. Power & fuel	148.22	160.08	170.16	167.95	20.89	29.42	31.88	23.86	5.04
3. Other conversion charges	61.61	88.40	68.60	55.41	43.99	31.63	34.03	32.51	40.11
4. Depreciation	11.87	17.75	16.90	46.01	9.75	26.92	24.04	65.50	3.98
5. Total	248.14	304.97	290.63	303.12	332.36	383.38	367.69	385.77	136.65
6. Less credits for materials recovered, etc.	0.29	0.36	0.91	0.90	..	..	..	..	..
NET TOTAL	247.85	304.61	289.72	302.22	332.36	383.38	367.69	385.77	136.65
8. Packing	..	..	..	..	64.76	109.99	112.72	95.00	..
9. Total Works Cost	247.85	304.61	289.72	302.22	397.12	493.37	480.41	480.77	136.65
									183.64
									159.70
									177.55

4.1. It will be seen from paragraphs 5.1.3., 6.2. and 7.1.4. of our latest Report (1961) on the continuance of protection to the caustic soda industry that output of caustic soda during

**4. Our approach to the problem** 1961 is likely to be of the order of 116,000 tonnes against an estimated demand of 201,800 tonnes and that we expect production to rise to

254,100 tonnes by 1964 against an estimated demand of 319,000 tonnes in that year. In other words, we see little prospect of any significant change in our dependence on imports in the near future. Further, it will be seen from the foregoing paragraphs that the costs of production show wide divergence from unit to unit depending on size, location, process of manufacture adopted, etc. In view, however, of the present shortage of caustic soda in the country it would be inadvisable to allow any of the units to cease or slow down production. At the same time the existing units, which are by and large small units, must strive and also be encouraged to become fully competitive as quickly as possible by expanding their capacity and bringing down their costs. The pricing policy should, therefore, be such as to fulfil the following objectives:—

- (a) Existing units must maintain production at the highest possible level consistent with proper maintenance of plant and machinery;
- (b) While low cost units should be given sufficient inducements to expand, the high cost units should be encouraged to make the best use of their resources to expand and reduce their costs;
- (c) Chemical caustic soda units, whose cost of production is higher than those units operating the electrolytic process have nevertheless been allowed by Government to expand their annual capacity from 6,710 tonnes in 1958 to 34,300 tonnes in 1961. An additional capacity of 3,190 tonnes is likely to be commissioned in 1964. The Third Five Year Plan has laid down the following relative shares of caustic soda, process-wise, by 1965-66:

	Tonnes
Chemical caustic soda . . . . .	50,000
Electrolytic caustic soda . . . . .	350,000

Since expansion of production of chemical caustic soda is being allowed under official sanction, our prices must be such as will not impair its capacity for production provided the units are run efficiently.

- (d) Chlorine is a joint product in the electrolytic process of manufacture of caustic soda. Although offtake of chlorine has improved substantially in recent years, its production will shortly rise to a level which will leave a burdensome surplus with several producers. In the circumstances positive encouragement

should be given to establish more industries based on chlorine. For this purpose it is desirable to maintain the price of chlorine at a sufficiently low level and the incidence of short realisation, if any, from chlorine will have to be loaded for sometime to come on caustic soda.

- (e) Since it is desirable in the national interest to economise in fuel and mild steel sheets for packing solid caustic soda, the difference between prices of liquid and solid caustic soda should be such as will not only prevent diversion of production to fused caustic soda but also stimulate production and consumption of liquid caustic soda.
- (f) The importance of avoiding an undue rise in the price of a basic industrial raw material like caustic soda cannot be over-emphasised. Having regard to the interests of the consumers on the one hand and the need on the other to secure maximum output of the industry, the prices of the next few years have to be determined on a balance of considerations.

4.2. The representative of the Development Wing urged that we should recommend ceiling prices for caustic soda not only on ex-works basis but also on ex-port town basis. He stated that since the sale of imported soda is confined to port towns and areas in their vicinity, its selling price should not be lower than that of indigenous caustic soda as otherwise domestic producers would have difficulties in disposing of their products. It was also mentioned that at present only one producer of rayon grade caustic soda was required to sell its product on ex-port town basis. Producers were, however, unanimously opposed to the fixation of price on ex-port town basis. They urged that since the industry was fairly well-dispersed throughout the country, there was no necessity for fixing fair selling prices at ports and principal internal markets. We were informed by the representative of the State Trading Corporation (S.T.C.) that imported caustic soda would be landed in future at Calcutta and Bombay as Madras had become self-sufficient. We notice that production of caustic soda is about 50 per cent in the technical grade and 50 per cent in the rayon grade and that since new capacities have been sanctioned mostly for rayon grade caustic soda, its share in the total output will be higher in future. We are also informed that about 80 per cent of the output of rayon grade caustic soda is subject to allocation by the Development Wing and that producers have to sell allocated quantities to the nominees of the Development Wing. In the circumstances, fixation of ex-port town prices will not serve any useful purpose so far as rayon grade caustic soda is concerned. Further, while it is desirable that caustic soda imported by S.T.C. should sell at ports at the same price as indigenous material, we do not see any strong objection to imported caustic soda being sold at a price slightly lower than indigenous product. In that event there will be some competition which would have the effect of making domestic producers more cost conscious and also stimulating them to improve the quality of their products. Our objection to uniform ex-port town prices is also more fundamental.

We have emphasised in our latest Report (1961) on the continuance of protection to the caustic soda industry, the need for reducing the cost of caustic soda and have recommended that existing units should be encouraged to expand their capacity to an economic size and that in licensing new units also, due attention should be paid to the importance of setting up plants of large capacity in areas advantageously situated with regard to power and common salt. Uniform selling prices at port towns would kill all incentives to lowering costs and might encourage haphazard growth of small units near consuming centres which are not favourably placed as regards power or raw materials.

4.3. Another point urged was that a slightly higher price should be fixed for rayon grade liquid caustic soda. It was pointed out that since prices for solid caustic soda and flakes are for material of purity of I.S.I. specification (technical grade) producers of rayon grade caustic soda, solid and flakes, received a higher price for every rise in purity of 1 per cent over the I.S.I. specification: that this principle has not been applied in the case of liquid caustic soda where the price is fixed on 100% NaOH content basis. It was urged that a higher price should be fixed for the higher purity material as has been done in other countries. While we accept the principle as sound, we are of the view that having regard to the importance of reducing the price of liquid caustic soda it would not be desirable at the present stage of development of the industry to fix a separate price for liquid caustic soda of the rayon grade.

5. Before we arrive at the fair ex-works prices, it will be necessary to add to the total works cost of the several products manufactured by the units, whose costs were examined by us, the following elements, namely (a) margin for contingencies and (b) fair return on capital.

**Determination of future fair ex-works prices**

5.1. We are satisfied that the present margin for contingencies, which is being admitted at Rs. 20 per ton of caustic soda in its three forms is necessary and should be continued with the modification that the rate should be Rs. 20 per tonne. We have also decided to admit a margin for contingencies at Rs. 10 per tonne each for liquid chlorine and hydrochloric acid and at Rs. 20 per tonne for bleaching powder. We feel that such margins for liquid chlorine, hydrochloric acid and bleaching powder are justified for the reason that the probable and unforeseen increases in the several elements of cost will affect these products equally with caustic soda. We also considered an alternative, namely, that of incorporating a suitable escalator clause to take care of probable increases in the prices of materials and other elements of cost. Since we are fixing fair ceiling prices for several products for the industry as a whole on the basis of our examination of costs relating to a few representative companies, we feel that it would be administratively very difficult, if not impossible, to adjust the escalator clause periodically.

5.2. Manufacture of caustic soda is a capital intensive heavy chemical industry and in view of the need to maintain optimum efficiency and production level, we consider that return on capital employed should be fair and reasonable. For this purpose, the capital employed has been estimated in each case as equivalent to the average net value of assets *plus* the working capital assessed at an amount equal to five months' cost of production exclusive of depreciation. We are of the view that an allowance at 12 per cent on capital employed would be adequate at the current level of taxation on profits, interest on borrowings, bonus, etc. We are also aware that in the scheme of price fixation, which we have adopted, quite a few of the units would be able to earn on all the products taken together more than 12 per cent return. We would urge that those units which are able to make better profits should conserve such surplus earnings and plough them back for rehabilitation of their machinery or modernisation or expansion of capacity or for diversified utilisation of chlorine within the unit itself.

5.3. Incidentally, we have also examined carefully whether a separate element for rehabilitation allowance should be included in the costs but decided that it was not necessary. Our grounds for rejecting it are similar to those stated in paragraph 11.3.5.2. of our Report (1961) on the continuance of protection to the soda ash industry. In addition, as observed in the foregoing paragraph quite a few of the units will have further margins of profit from the scheme of prices and they should utilise such gains for the proper maintenance and modernisation of their plant and machinery.

5.4. Our estimates of fair ex-works prices of different products for each unit are given in the following statements:—

Statement	I — caustic soda
"	II — liquid chlorine
"	III — hydrochloric acid (commercial grade)

**STATEMENT I**

*Estimated fair ex-works prices of caustic soda*

(Rs. per Tonne)

Name of product	Caustic lye (100% NaOH)					Taxes	Chemical	Weighted Average	DCM
Name of unit	ACCI	Calico	DCM	Dhranga-dhra	Mettur	Electro-lytic			
Production (Tonnes)	6,890	6,650	13,804	38,000	12,125	4,704	7,296	12,000	7,167
1. Raw materials . . . . .	148.75	138.07	128.85	61.95	109.62	69.96	403.94	273.02	128.85
2. Power & fuel . . . . .	238.30	196.09	331.26	90.34	169.86	439.06	113.97	241.41	364.43
3. Other conversion charges . . . . .	237.54	162.50	189.74	72.49	115.16	168.21	89.47	120.34	227.53
4. Depreciation . . . . .	57.67	187.40	103.33	88.15	80.87	94.18	97.86	96.42	105.47
5. Packing . . . . .	3.73	..	..	..	..	3.12	3.12	3.12	41.36
6. Cost of unutilised chlorine . . . . .	..	..	14.49	130.11	42.63	9.53	..	3.74	14.49
7. Total . . . . .	685.99	684.06	767.67	443.04	518.14	784.06	708.36	738.05	882.13
8. Less credit . . . . .	238.45	304.59	311.19	122.65	142.04	276.90	23.03	122.55	311.19
9. Total Works Cost . . . . .	447.54	379.47	456.48	320.39	376.10	507.16	685.33	615.50	570.94
10. Contingencies . . . . .	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
11. Return . . . . .	62.38	110.64	72.42	91.31	71.40	116.55	134.20	127.26	80.07
12. FAIR EX-WORKS PRICE PER TONNE.	529.92	510.11	548.90	431.70	467.50	643.71	839.53	762.76	671.01
13. FAIR EX-WORKS PRICE PER 50 KGS.	26.50	25.51	27.45	21.59	23.38	32.19	41.98	38.14	33.55

**STATEMENT I—Contd.**

(Rs. per Tonne)

Name of product	Caustic soda fused solid				Caustic soda flakes					
Name of unit	Mettur	Dhranga-dhra	Tatas	Electro-lytic	Chemical	Weighted Average	DCM	Mettur	Dhranga-dhra	Tatas
Production (Tonnes)	7,600	38,000	4,210	6,540	10,750	2,100	1,500	1,000	1,000	2,300
1. Raw materials . . . . .	105.22	61.95	67.16	387.78	262.10	128.97	107.32	61.95	262.10	262.10
2. Power & fuel . . . . .	209.68	120.58	459.44	147.35	269.69	370.04	215.27	123.05	272.21	272.21
3. Other conversion charges . . . . .	162.98	97.02	177.13	100.33	130.42	235.76	167.82	99.03	144.34	144.34
4. Depreciation . . . . .	80.85	102.60	94.69	98.23	96.84	108.44	82.56	105.09	96.84	96.84
5. Packing . . . . .	52.62	57.58	51.55	51.55	51.55	99.10	164.75	162.88	120.90	120.90
6. Cost of unutilised chlorine . . . . .	40.92	130.11	9.15	... . .	3.59	14.50	41.74	130.11	3.59	3.59
7. Total . . . . .	652.27	569.84	859.12	785.24	814.19	956.81	779.46	682.11	899.98	899.98
8. Less credit . . . . .	136.35	122.65	265.83	22.11	117.65	311.50	139.08	122.65	117.65	117.65
9. Total Works Cost . . . . .	515.92	447.19	593.29	763.13	696.54	645.31	640.38	559.46	782.33	782.33
10. Contingencies . . . . .	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
11. Return . . . . .	80.88	109.80	121.21	138.72	131.86	85.72	92.29	117.61	136.23	136.23
12. Fair Ex-Works Price Per Tonne . . . . .	616.80	576.99	734.50	921.85	848.40	751.03	752.67	697.07	938.56	938.56
13. Fair Ex-Works Price Per 50 Kgs. . . . .	30.84	28.85	36.73	46.09	42.42	37.55	37.63	34.85	46.93	46.93

**STATEMENT II**

*Estimated fair ex-works prices of liquid chlorine*

(Rs. per Tonne)

Name of unit	ACCI	Calico	D.C.M.	Mettur	Tatas
<b>Production (Tonnes)</b>					
1. Raw materials	5,634	4,870	9,809	6,600	2,580
2. Power & fuel	264.74	359.28	357.97	147.15	263.90
3. Other conversion charges	11.49	16.76	12.10	5.17	23.86
4. Depreciation	37.49	50.43	34.93	25.00	32.51
5. Packing	10.45	40.66	6.42	6.90	65.50
6. Total	55.31	20.57	..	34.97	95.00
7. Less Credit	379.48	487.70	411.42	219.19	480.77
8. TOTAL WORKS COST	..	..	..	..	..
9 Contingencies	379.48	487.70	411.42	219.19	480.77
10. Return	10.00	10.00	10.00	10.00	10.00
11. FAIR EX-WORKS PRICE PER TONNE	67.64	173.68	70.95	47.86	82.86
12. FAIR EX-WORKS PRICE PER 50 KGS.	457.12	671.38	492.37	277.05	573.63
	22.86	33.57	24.62	13.85	28.68

**STATEMENT III**

*Estimated fair ex-works prices of hydrochloric acid (commercial grade)*

(Rs. per Tonne)

Name of Unit	ACCI	Calico	D.C.M.	Mettur	Dharan-gadhra	Tatas
Production (Tonnes)	2,516	620	3,000	3,400	1,305*	2,500
1. Raw materials . . . . .	81.20 3.34	111.29 0.48	131.26 1.37	62.70 1.05	63.43 0.02	90.40 3.79
2. Power and fuel . . . . .						
3. Other conversion charges (including packing charges) . . . . .	67.97 8.50	18.55 23.55	17.65 4.33	8.74 7.01	2.04 2.65	53.76 29.60
4. Depreciation . . . . .						
5. Total Works Cost . . . . .	161.01	153.87	154.61	79.50	68.14	177.55
6. Contingencies . . . . .	10.00	10.00	10.00	10.00	10.00	10.00
7. Return . . . . .	26.12	147.21	21.98	15.38	19.84	37.97
8. FAIR EX-WORKS PRICE PER TONNES . . . . .	197.13	311.08	186.59	104.88	97.98	225.52
9. FAIR EX-WORKS PRICE PER 50 KGS. . . . .	9.86	15.55	9.33	5.24	4.90	11.28

\*Balance after transfer for manufacture of salt.

**5.5.** Brief observations on variations in items of costs of the different producers are given below. The comparison is made mainly with reference to caustic soda by electrolytic process, as the chemical process is adopted only by one of the costed units, namely, Tatas. As regards cost of salt (the main raw material for electrolytic caustic soda), the units which own salt works or have salt at the site are at an advantage. This explains the reason for the low cost of raw materials for Tatas and Dhrangadhra and to some extent for Mettur. As regards power, Mettur and Dhrangadhra (not to mention other units in the south like Travancore-Cochin Chemicals) have the advantage of a low tariff on their purchased power. The cost of coal for generation of power by Tatas and D. C. M. is high and this accounts for the high incidence of cost of power and steam in their case. A scrutiny of the figures of costs of the several producers also indicates that units using mercury cells have potentialities for production of caustic soda at low cost. In their case, caustic soda in 50% NaOH concentration is obtained from the cell house itself and is marketable without further processing, whereas in the case of producers, who use diaphragm cells, weak liquor (8 to 11% NaOH concentration) has to be evaporated and made into thick liquid (of 50% NaOH concentration) in order to make it a marketable product. Though the initial cost of investment for mercury cells is higher than that for diaphragm cells, the conversion charges in the latter process up to the stage of producing 50% NaOH concentration are higher. The only apparent disadvantage would seem to be that mercury, which is essential for the mercury cell process, is imported and might, in an emergency, prove to be a bottleneck unless the concerned units resort to stock-piling. Marked divergence in the figures of depreciation is mainly attributable to factors, such as, age of plant, capacity and output, type of equipment installed, etc. Similar variations are reflected in the capital employed computed for each unit for the reason that in addition to the variations in the amount of net block for the several units, working capital element is also different depending upon the cost of production of the units concerned.

**6.1.** The principles of fixing fair selling prices for the several products of the industry are discussed below:—

**6.2.** The initial product of any process of manufacture of caustic soda is a lye form of the chemical which is processed further to produce fused solid caustic soda or caustic soda flakes. Since sales take place mostly in the form of solid caustic soda and there is not likely to be any material change in this position during the next three years it is necessary to treat fused solid caustic soda for the time being as the base for the purpose of fixing prices—the prices of the other forms, namely, lye and flakes, being determined on considerations mentioned in paragraph 4.1 (e), known or market differentials, etc.

6.3. The fair ex-works prices estimated by us for caustic soda lye (100% NaOH) for the six units are as under:—

The low lye cost of Dhrangadhra appears to be due, in addition to other causes, to the process of manufacture by mercury cells. In paragraph 6.9 we are recommending that the existing ceiling price of Rs. 21.85 per 50 kg. for liquid chlorine should be maintained although the weighted average for the industry indicates a higher price of Rs. 24.71 per 50 kg. (including selling expenses). This would involve, in terms of the principle enunciated in paragraph 4.1 (d), the loading on the price of caustic soda of an element representing Rs. 2.86 per 50 kg. of chlorine produced. We have considered the matter carefully and are of the view that in the interests of the industry the prices of caustic soda in three forms should be loaded with an additional element on this account. The addition to the cost of caustic soda works out to Rs. 2.43 because for every tonne of caustic soda produced by the electrolytic process the quantity of chlorine generated is around 0.85 tonne. In addition, selling expenses at Re. 1 per 50 kg. should be added to the fair ex-works price to arrive at the fair ex-works selling price of caustic lye. This works out as follows:—

	Rs. per 50 kg.
Estimated weighted average fair ex-works price of all the units . . . . .	25.63
Loss on sale of chlorine . . . . .	2.43
Selling expenses . . . . .	1.00
<b>TOTAL . . . . .</b>	<b>29.06</b>

It will be seen that the weighted average selling price including Dhrangadhra works out to Rs. 29·06 per 50 kg. as against the existing price of Rs. 31·50 per cwt. or Rs. 31·00 per 50 kg. By excluding Dhrangadhra the corresponding weighted average selling price works out to Rs. 32·04 per 50 kg. Representatives of the industry pointed out that Dhrangadhra's low cost of production by virtue of its size, location and special advantages of cheaper raw material and power would depress the weighted average for the industry and make it unrepresentative for the majority of the existing units. They urged that having regard to the present structure of the industry the selling price of solid caustic soda should be determined on the basis of the weighted average selling price of caustic lye excluding Dhrangadhra. We have given the matter our careful consideration. While we agree that the price to be fixed should not impair the capacity for production of any unit we must remind the industry that the return must depend upon its ability to serve the consumer by bringing down costs and improving the quality of its products. It will be noticed that the weighted average of the ex-works price of the units excluding Dhrangadhra is higher than the estimated fair ex-works prices of all the units other than Tatas. Such a high price would kill all incentive to economy. We have, therefore, decided to fix the future prices of solid caustic soda and flakes on the basis of the weighted average selling price of caustic soda lye of all the units costed.

*6.4. Caustic soda solid.*—On the basis of the estimates of costs of production worked out by us for future, we find that the difference between the fair ex-works prices of caustic soda in the form of lye and solid, ranges between Rs. 4·28 and Rs. 7·46 per 50 kg.—the weighted average being Rs. 6·65 per 50 kg. By adding this amount to the weighted average price of Rs. 29·06 for caustic soda lye, the ex-works selling price of fused solid caustic soda works to Rs. 35·71 per 50 kg. This price is lower than the prevailing price of Rs. 35·92 per 50 kg. Although we would be justified in recommending a lower price, we have refrained from doing so lest a cut in price acts at the present juncture as a disincentive to further flow of capital to the industry. We, therefore, recommend that ex-works selling price of caustic soda solid conforming to I.S.I. specification (technical grade) may be fixed at Rs. 36·00 per 50 kg.

*6.5. Caustic soda lye (100% NaOH).*—It was urged at the public inquiry that the price differential between caustic soda in the form of lye and fused solid should not be higher than Rs. 100·00 per tonne. At the time of our inquiry in 1958, though we originally determined the price of lye strictly on the basis of cost examination, our hope that the low cost of lye would be attractive to consumers and that the consumption of lye would go up was not fulfilled. Later, we accepted the view that the saving of cost of fusion should be shared between producers and consumers and agreed to an upward revision of the price of caustic lye to Rs. 29·00 per cwt. Subsequently, when the prices were revised from 1st February 1961, the price differential between caustic lye (100% NaOH basis) and caustic soda solid fused (of ISI basis) was reduced to Rs. 100 per tonne. It was pointed out, however, at the public inquiry that the existing differential between solid and liquid

caustic soda worked to about Rs. 136 per tonne on the basis of 100 per cent NaOH content and that this was considerably higher than what was prevalent in other countries. Mention was made that the corresponding difference did not exceed Rs. 80 per ton in the U.K. The present differential was brought into force from 1st February 1961 and has been in existence for barely ten months. We notice from Appendix IV to our recent Report on the continuance of protection to the caustic soda industry that there was a slight shift to higher production of lye during the first half of 1961. Purely on the basis of cost examination, the apparent difference between the prices of solid and liquid caustic soda is Rs. 6·65 per 50 kg. or Rs. 133·00 per tonne. On the basis of 100 per cent NaOH content, the real difference works to Rs. 170·60 per tonne. Such a wide margin may in our view prove to be a disincentive to increased sale of lye. One of the serious impediments to larger consumption of lye is the shortage of railway tank wagons; nevertheless we feel that if the industry can be persuaded to invest in tank lorries and in educating small consumers how to use lye, it might be possible to increase consumption of caustic soda in the form of lye. It must be recognised, however, that unless it is relatively more profitable for the producer to market caustic soda lye he may not be induced to take active steps to stimulate its consumption. After taking into account all aspects of the case, we consider that the existing differential of Rs. 136·20 per tonne between the prices of solid and liquid caustic soda on the basis of 100 per cent NaOH content is adequate and need not be reduced. At Rs. 36·00 per 50 kg. which we have recommended for solid caustic soda (I.S.I.—technical grade), the price of solid caustic soda on 100 per cent NaOH content works to Rs. 37·89 per 50 kg. or Rs. 757·80 per tonne. We recommend, therefore, that the ex-works selling price of liquid caustic soda on the basis of 100 per cent NaOH content should be fixed at Rs. 621·60 (Rs. 757·80 less Rs. 136·20) per tonne or Rs. 31·08 or say Rs. 31·00 per 50 kg. This price includes filling charges but not the rental of containers. It is true that consumers of caustic soda in the form of lye who are situated at places away from producing centres have to bear higher railway freight charges on actual caustic soda content, because caustic lye is marketed at about 50% NaOH concentration only. We have made appropriate recommendation in paragraph 16.2 of our 1961 Report on the continuance of protection to the caustic soda industry for encouraging the movement of liquid soda over long distances. At any rate, they will derive no special advantage in demanding fused solid caustic soda since in addition to the higher price for such caustic soda, they will have to incur extra expenses for converting the caustic soda solid again into lye.

*6.6. Caustic soda flakes.*—The weighted average of flaking charges of the three units, who manufacture caustic soda flakes works out to Rs. 5·07 or say Rs. 5·00 per 50 kg. We are of the view that an addition of Rs. 5·00 on account of charges for flaking, packing, etc. per 50 kg. to the ex-works selling price of caustic soda solid (technical grade) conforming to I.S.I. specification would yield a representative fair selling price for the sale of caustic soda in the form of flakes. We accordingly

recommend that the ex-works selling price of caustic soda flakes (technical grade) conforming to I.S.I. specification should be fixed at Rs. 41·00 per 50 kg. The share of flakes is about 4% of the consumption of caustic soda in all forms and we are satisfied that the price recommended by us is fair and equitable.

6.7. We have also satisfied ourselves that on the basis of selling prices recommended in the foregoing paragraphs, the units which have been costed by us, barring Tatas, will suffer no financial embarrassment. So far as Tatas are concerned, the prices will to a large extent cover the price of its electrolytic caustic soda but not its chemical caustic soda. This is unavoidable in view of the consideration set out in paragraph 4.1(f).

6.8. *Gas chlorine*.—As none of the units is at present marketing gas chlorine as such, we recommend that there should be no price control on the sale of chlorine in this form. We have accordingly not indicated separately any price for gas chlorine.

6.9. *Liquid chlorine in returnable containers*.—The weighted average fair ex-works price of the five units, whose costs were examined by us is Rs. 23·71 per 50 kg. (including margin for contingencies at Rs. 10 per tonne). Adding selling expenses of Re. 1 per 50 kg., the selling price for the industry works out to Rs. 24·71 per 50 kg. In view of the fact that the majority of the producers were not able to realise the present ceiling price of Rs. 21·85 per tonne and had to destroy quite a sizeable portion of gas chlorine, we feel that it would not be helpful to the industry if we fixed a higher ceiling price on the basis of the latest costs. First, a higher price would not be realisable and secondly it would be harmful in the present stage of development of chlorine-based industries. We recommend, therefore, that the existing ex-works selling price (inclusive of filling charges) for liquid chlorine in returnable containers, namely, Rs. 21·85 per 50 kg., should be maintained. However, in respect of liquid chlorine supplied for the manufacture of chlorine products within the factory or in adjacent units, no selling expenses should be admissible.

6.10. *Hydrochloric Acid (Commercial Grade)*.—The weighted average of the fair ex-works price of hydrochloric acid of six units, who produce and market hydrochloric acid works out to Rs. 8·61 (including margin for contingencies at Rs. 10 per tonne) per 50 kg. Adding Re. 1 per 50 kg. for selling expenses, the fair selling price for the industry would work out to Rs. 9·61 or say Rs. 9·70 per 50 kg. as against the existing ceiling price of Rs. 10·65 per 50 kg. We recommend that the ex-works selling price for hydrochloric acid (commercial grade) may be fixed at Rs. 9·70 per 50 kg. We may add that the industry in general has not been able to recover the present ceiling price fixed for hydrochloric acid and in fact many units have been compelled to destroy a sizeable quantity of chlorine in the form of hydrochloric acid. In respect of hydrochloric acid supplied for the manufacture of other products within the factory or adjacent units, no selling expenses should be admissible.

**6.11. Bleaching powder—Stable :**

6.11.1. Three units, namely, Mettur Chemical & Industrial Corporation Ltd., Rohtas Industries Ltd. and Tata Chemicals Ltd. were producing bleaching powder in 1958. Of these, Tatas discontinued production of bleaching powder in 1960. We are informed that Rohtas Industries which produced bleaching powder intermittently to meet local demand is not likely to utilise its capacity for bleaching powder in future. Thus, Mettur remains virtually the only unit at present producing stable bleaching powder on a regular commercial scale. Its annual productive capacity based on a stream efficiency of 85 per cent works out to 8,400 tonnes for stable bleaching powder. The company operates its old unstable bleaching powder plant only to the extent necessary for disposal of sniff gas from its liquid chlorine plant. Its production since 1958 was as follows:—

		(In tonnes)		
		Stable	Unstable	Total
1958	.	3,768	1,787	5,555
1959	.	3,300	1,239	4,539
1960	.	5,293	283	5,576
1961 (Jan.-June)	.	3,167	Nil	3,167

The other two units produced only unstable bleaching powder and their production was as under:

		(In tonnes)			
		1958	1959	1960	1961 (Jan.-June)
Tata Chemicals Ltd.	.	414	456	88	Nil
Rohtas Industries Ltd.	.	733	353	485	208
		1,147	809	573	208

We are informed by the Development Wing that production of unstable bleaching powder has now been stopped as it is of inferior quality and that it has decided to exclude the capacity installed for its production from all statistical data.

6.11.2. We are informed that licences for establishing additional capacity for bleaching powder to the extent of 28,500 tonnes a year have been issued. The Development Wing has, however, stated that

as foreign exchange for these projects has not so far been released, it is difficult to forecast when these schemes would materialise. Particulars of licences granted are as follows:—

	Licensed capacity (In Tonnes per annum)
1. D.C.M. Chemical Works, Delhi . . .	10,160 Stable
2. Bangur Bros., Berhampur . . .	8,280
3. Dhrangadhra Chemical Works Ltd., Sahupuram . . .	10,060 High test hypochloride
<b>TOTAL</b>	<b>28,500</b>

6.11.3. We observed in our last Report that an accurate estimate of the demand for bleaching powder was difficult because of the possibility of replacing it by other bleaching materials like liquid chlorine, bleach liquor and hydrogen peroxide. We accordingly framed on the basis of past consumption only rough estimates of demand at 8,000 tonnes in 1958 and 12,000 tonnes in 1961. During present investigations, the Alkali Manufacturers' Association of India has stated that because of substitutes available for bleaching powder, it is difficult to make an accurate assessment of demand for bleaching powder. It has, however, expressed the view that the total demand at present and during the next three years would be 7,000 to 8,000 tonnes a year. The Development Wing also has estimated the current demand at 8,000 tonnes but it expects the demand to increase at an annual rate of 1,000 tonnes to 12,000 tonnes in 1964. The trend of apparent consumption during the last three years was as follows:—

Year	In Tonnes		
	Production	Imports	Total
1958 . . . . .	6,702	2,778	9,480
1959 . . . . .	5,348	3,225	8,573
1960 . . . . .	6,149	1,624	7,773

Although the trend is downward and would seem to justify a lower estimate of demand for 1961, we are of the view that having regard to the progressive improvement in the standard of living and higher tempo of industrialisation the demand for bleaching powder will be higher in 1961. Recent trends in market prices also indicate that the article is in short supply. Accordingly, we have estimated the demand for that year

at 8,000 tonnes. As regards the future, we consider that the demand is not likely to decrease and may go up to 10,000 tonnes by the end of 1964.

6.11.4. For the manufacture of stable bleaching powder the important raw materials are liquid chlorine and slaked lime. Both these materials are manufactured by Mettur Chemicals and their works costs have been taken into account for estimating the cost of production of bleaching powder. The question of future production was discussed with the representatives of the unit who agreed that given some auxiliary and balancing equipments it would be possible to achieve an annual production of 7,500 tonnes. We consider such equipments are essential having regard to the corrosive nature of the reaction and have made necessary provision for them. The cost of production during the year April 1960 to March 1961 (for which costs were examined) and our estimates for future per tonne of unpacked stable bleaching powder are given below:—

	Rs. per Tonne	
	Actuals 1960-61	Estimate for future
Production in Tonnes . . . . .	5,118	7,500
Raw Materials . . . . .	212.73	184.66
(ii) Conversion charges . . . . .	69.57	68.73
(iii) Depreciation . . . . .	33.60	25.74
WORKS COST . . . . .	315.90	279.13

After providing a sum of Rs. 20 by way of margin for contingencies, a return at 12 per cent on employed capital and Rs. 20 for selling expenses, the fair ex-works selling price exclusive of packing charges, for future works out to Rs. 381.59 per tonne as follows:—

	Rs. per Tonne
Works cost . . . . .	279.13
Contingencies . . . . .	20.00
Return . . . . .	62.46
Selling expenses . . . . .	20.00
Fair ex-works selling price . . . . .	381.59

6.11.5. Stable bleaching powder is sold by the company in different size packings and the costs of containers vary depending on their capacities. After adding the costs of such containers for different packings (rounded off to the next higher nP. 5) the fair selling prices work out as follows:—

Size of packing	Fair ex-works selling price
	Rs.
55 Kgs. . . . .	28.80
50 Kgs. . . . .	26.30
40 Kgs. . . . .	21.75
25 Kgs. . . . .	14.70
12.5 Kgs.. . . . .	8.80

These prices are lower than the current ceiling prices of bleaching powder.

6.11.6. Although on the basis of our estimated cost of production we would be justified in recommending lower selling prices for the different packings of bleaching powder we have refrained from doing so on the following grounds:—

(a) Mettur Chemicals Works is advantageously placed as regards liquid chlorine—its own estimated fair ex-works price being Rs. 13·85 per 50 kgs. against the selling price of Rs. 21·85 per 50 kgs. recommended by us. If the price of bleaching powder is kept at a low level, the company may not have sufficient incentive to expand its production of bleaching powder. If this eventuates, it will involve import of the latter material at the cost of our foreign exchange.

(b) Mettur remains at present the sole producer of bleaching powder and it is desirable that at least one more unit be encouraged to enter the field. Although three more units have been licensed, no information is available when they will commence production. Unless prices are attractive, new entrepreneurs are unlikely to risk their capital. After considering all these aspects we have come to the conclusion that the present schedule of prices need not be disturbed. It may be stated in this connection that the company has discontinued selling bleaching powder in 100 kg. packings. Its sale in packings smaller than 12·5 kgs. is also insignificant. We have not, therefore, indicated the prices of

those packings. We recommend that the fair ex-works selling prices for bleaching powder should be maintained at the following rates:—

Size of packing	Fair selling price
	Rs.
55 Kgs. . . . .	32.55
50 Kgs. . . . .	30.15
40 Kgs. . . . .	25.35
25 Kgs. . . . .	16.10
12.5 Kgs.. . . .	9.25

6.11.7. We realise that the above prices will enable Mettur to earn some extra profit. We hope that in its enlightened self-interest the company would not fritter away such surplus earnings by declaring higher dividends, but would conserve and use them to maintain the plant and machinery at the level of optimum production and also to explore the possibilities of exports to neighbouring countries.

6.12. The ex-works selling prices recommended by us for caustic soda in its three forms, liquid chlorine, hydrochloric acid (commercial) and stable bleaching powder should be notified as ceiling prices for purchases ex-factory either directly or through selling agents or distributors of the manufacturers. These prices are exclusive of all levies, Central or State, and should be in force till the end of December, 1964.

7. Our conclusions and recommendations are summarised below:—

**Summary of conclusions and recommendations.**

(1) Selling prices for caustic soda, chlorine, hydrochloric acid and bleaching powder should be fixed on ex-works basis as at present.

[Paragraph 4.2.]

(2) At the present stage of development of the industry it is not desirable to fix a separate price for liquid caustic soda of the rayon grade.

[Paragraph 4.3.]

The ex-works selling price of fused solid caustic soda conforming to I.S.I. specification (technical grade) should be fixed at Rs. 36·00 per 50 kg.

[Paragraph 6.4.]

(4) The ex-works selling price of caustic soda lye on the basis of 100 per cent NaOH content should be fixed at Rs. 31·00 per 50 kg. The price includes filling charges but not the rental of containers.

[Paragraph 6.5.]

(5) The ex-works selling price of caustic soda flakes conforming to I.S.I. specification (technical grade) should be fixed at Rs. 41·00 per 50 kg.

[Paragraph 6.6.]

(6) There should be no price control on the sale of chlorine in gaseous form.

[Paragraph 6.8.]

(7) The ex-works selling price inclusive of filling charges of liquid chlorine in returnable containers should be maintained at the existing level of Rs. 21·85 per 50 kg. In respect of liquid chlorine supplied for the manufacture of chlorine products within the factory or in adjacent units, selling expenses of Re. 1 per 50 kg. will not be admissible.

[Paragraph 6.9.]

(8) The ex-works selling price of hydrochloric acid (commercial grade) should be fixed at Rs. 9·70 per 50 kg. In respect of hydrochloric acid supplied for the manufacture of other products within the factory or adjacent units, selling expenses of Re. 1 per 50 kg. will not be admissible.

[Paragraph 6.10.]

(9) The ex-works selling prices of bleaching powder (stable) for packings of 55 kg., 50 kg., 40 kg., 25 kg., and 12·5 kg. should be maintained at the current levels of Rs. 32·55, Rs. 30·15, Rs. 25·35, Rs. 16·10 and Rs. 9·25 respectively. There is no need to fix selling prices for smaller sizes of packings.

[Paragraph 6.11.6.]

(10) The ex-works selling prices of caustic soda in its three forms, liquid chlorine, hydrochloric acid (commercial) and stable bleaching powder recommended above should be notified as ceiling prices for purchases ex-factory either directly or through agents or distributors of the manufacturers. These prices are exclusive of all levies, Central or State, and should be in force till the end of December 1964.

[Paragraph 6.12.]

8. We wish to convey our thanks to the manufacturers  
**Acknowledgements.** soda for their co-operation in carrying  
 investigation.

K. R. P. AIYANGAR,

*Chairman.*

J. N. DUTTA,

*Member.*

J. N. SEN GUPTA,

*Member.*

R. BALAKRISHNA,

*Member..*

PRAMOD SINGH,  
*Secretary.*

BOMBAY,

Dated 23rd November, 1961. *कानूनी संघर्ष*



## APPENDIX I

[*Vide* paragraph 1.4.]

GOVERNMENT OF INDIA

### MINISTRY OF COMMERCE & INDUSTRY RESOLUTION

*New Delhi, the 31st January 1961.*

**No. CH(1)-15(29)/60.**—Ceiling prices of fused caustic soda, caustic lye, caustic soda flakes, dry gas chlorine, liquid chlorine and hydrochloric acid were announced after consultation with the Tariff Commission on the 27th October, 1959, *vide* Resolution No. CH(1)-31(36)/58. These ceiling prices were to remain in force till 31st December, 1960. Pending the completion of the review of these prices, they were continued to remain in force till the 31st January, 1961. The review has now been completed, taking into account the representations that were received from the Industry. After giving the due consideration to all the relevant factors, the following revised ceiling prices for Caustic soda are announced, which will remain in force for one year from the 1st February, 1961 and they will be subject to the same conditions as enumerated in paragraph 4 of the Resolution dated 27th October, 1959.

Name of article	Revised prices (Per Cwt.)
Caustic soda flakes . . . . .	Rs. 41.50 (on ISI basis).
Solid . . . . .	Rs. 36.50 (on ISI basis).
Caustic Liquid . . . . .	Rs. 31.50 (on a 100% basis).

There will be no change in the prices of Dry gas chlorine, Liquid Chlorine and Hydrochloric Acid.

### ORDER

ORDERED that a copy of the Resolution be communicated to all concerned and that it be published in the *Gazette of India*.

(S. RANGANATHAN),

*Secretary.*

**APPENDIX II**  
**[Vide paragraph 1.4.]**  
**GOVERNMENT OF INDIA**  
**MINISTRY OF COMMERCE & INDUSTRY**  
**RESOLUTION**

*New Delhi, the 31st January 19*

**No. CH(1)-31(44)/59.**—The price of Bleaching Powder in various sizes of packing was announced after consultation with the Tariff Commission on the 31st May, 1960, *vide* Resolution No. CH(1)-31(44). Since then, various representations have been received from the manufacturers of Bleaching Powder for a revision of the prices so far. Taking into account all the relevant factors, it has been decided that the fair ex-works ceiling prices for different bulk packings entering wholesale trade should be as below. These prices will remain in force for a period of six months from the 1st February, 1961.

Size of packing	Rev. ex-w. ceil pri
Kgs.	Rs.
100 . . . . .	57.
55 . . . . .	32.
25 . . . . .	16.
12.5 . . . . .	9.
3.0 . . . . .	3.
1.5 . . . . .	1.
0.5 . . . . .	0.
0.25 . . . . .	0.

**ORDER**

ORDERED that a copy of the Resolution be communicated to concerned and that it be published in the *Gazette of India*.

(S. RANGANATHAN),  
*Secretary.*